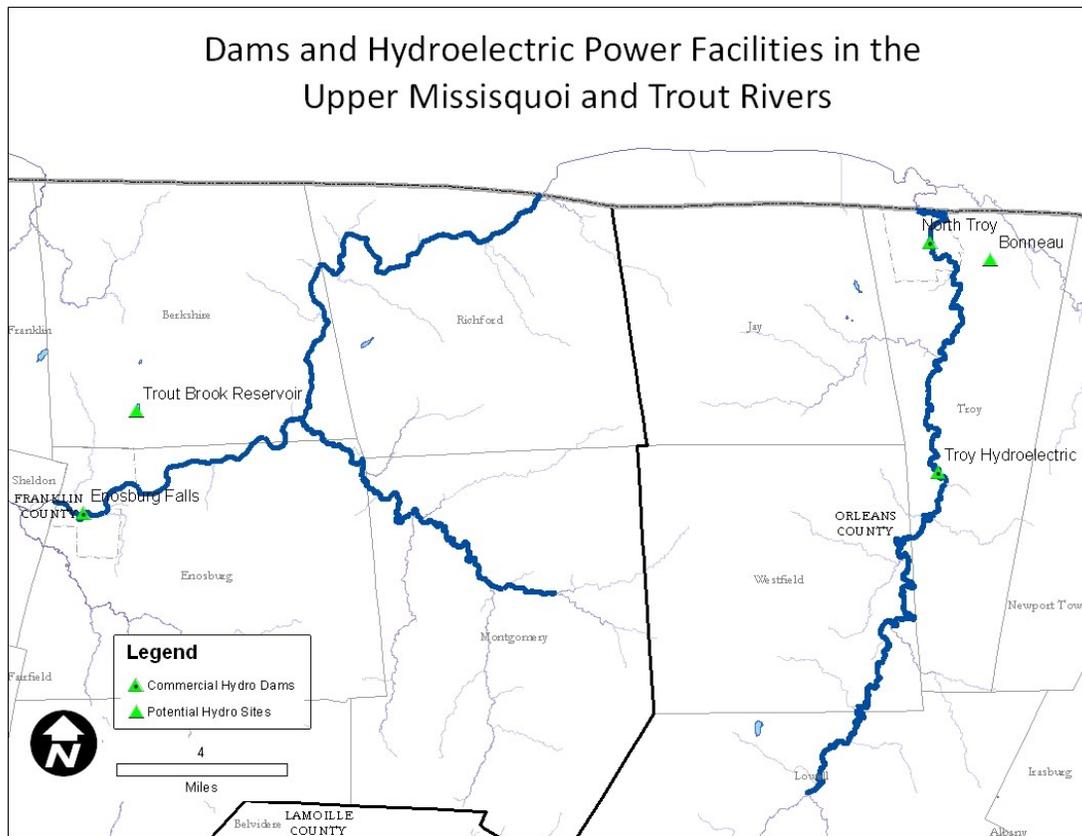


Appendix 10. Fact Sheet on Dams and Hydroelectric Power

Upper Missisquoi and Trout Rivers Wild and Scenic Study Committee Fact Sheet on Dams and Hydroelectric Power



The origin of the Wild and Scenic Act, in 1968, was at a time when large-scale dam building was occurring in the U.S. The Act was established to try to create a balance between the Federal Energy Regulatory Commission's (FERC) licensing of hydropower facilities and free-flowing rivers.

Wild and Scenic Act: § 1278. Restrictions on water resources projects (a) Construction projects licensed by Federal Energy Regulatory Commission

"The Federal Energy Regulatory Commission shall not license the construction of any dam, water conduit, reservoir, powerhouse, transmission line, or other project works under the Federal Power Act (41 Stat. 1063), as amended (16 U.S.C. 791a et seq.), on or directly affecting any river which is designated in section 1274 of this title as a component of the national wild and scenic rivers system or which is hereafter designated for inclusion in that system, and no department or agency of the United States shall assist by loan, grant, license, or otherwise in the construction of any water resources project that would have a direct and adverse effect on the values for which such river was established, as determined by the Secretary charged with its administration. Nothing contained in the foregoing sentence, however, shall preclude licensing of, or assistance to, developments below or above a wild, scenic or recreational river

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area or on any stream tributary thereto which will not invade the area or unreasonably diminish the scenic, recreational, and fish and wildlife values present in the area on the date of designation of a river as a component of the National Wild and Scenic Rivers System.”

The Federal Energy Regulatory Commission (FERC) has jurisdiction, under the Federal Power Act, over navigable waters. The Federal Power Act states:

"Navigable waters" (for which the Commission has jurisdiction under the Commerce Clause) are defined to include "streams or other bodies of water over which Congress has jurisdiction to regulate commerce among foreign nations and among the States" ([16 U.S.C. 796](#)). The Commission is authorized to issue licenses to construct, operate and maintain dams, water conduits, reservoirs, and transmission lines to improve navigation and to develop power from any streams or other bodies of water over which it has jurisdiction ([16 U.S.C. 797\(e\)](#)).

Typically navigable waters are defined as those which could be navigated by boat, even a canoe or kayak, though historic log drives have also been used as a basis for determining navigability. The mainstem of both the Troy and Missisquoi Rivers are considered navigable waters.

All projects which are **federally assisted through funding or permits (for example an Army Corps permit, a Clean Water Act Permit (NPDES), etc...)** **AND are construction or development projects (not just a study), AND are water related, AND have a direct relationship to the designated river are reviewed**, as outlined under Section 7 of the Wild and Scenic Act, by the local Advisory Committee and the National Park Service (NPS). Please see below for an outline as to how such a review impacts new hydro and dam projects, the only explicitly prohibited activities under the Act.

If other proposed projects are reviewed under Section 7 and found to have “a direct and adverse effect on the values for which such river was established,” then the National Park Service and the local Advisory Committee would suggest changes to the project to eliminate this impact. Since the Committee meets monthly, projects are reviewed quickly to avoid unnecessary delays. Typically there are few or no comments from the NPS or the Advisory Committee. Occasionally, there is something to say about a project. An example of such a comment would be suggesting the creation of a gap in a guardrail in order to lessen the impact to recreation by this road project because guardrails would otherwise block access to the site or mar its historic or aesthetic value. If the adverse impacts of the project were not remedied, the NPS could utilize its veto power over such a project. In the history of Partnership Wild and Scenic Rivers (those owned privately rather than federally) in New England, there has never been a project vetoed by the NPS. One project did not go through after the proposed changes would increase the time and expense of the project prohibitively. This project was extreme and required 24 hour/day dredging for 3 years in order to allow passage of large ships up river to a liquefied natural gas facility.

Ask first - is it a federally funded or permitted project? If not, then it doesn't fall under Section 7 review and cannot be prohibited by Wild and Scenic designation. Most hydroelectric and dam construction projects do fall under federal jurisdiction, therefore Wild and Scenic designation will preclude development of these new projects on designated river segments, and could limit those upstream, downstream or on tributaries if they would “invade or unreasonably diminish” the values of the designated Wild and Scenic River area.

HYDRO

New Hydro

If you are considering a new hydro project, it will likely require Federal Energy Regulatory Commission (FERC) permitting.

Projects on the main stem of the Missisquoi and Trout Rivers will require a license or exemption issued by FERC. The Wild and Scenic Act states that FERC cannot permit new hydro (see excerpt above), so if the area in which you propose a hydro project is within an area designated Wild and Scenic, and FERC is involved, the project will not be permitted.

This prohibition applies to the designated reach, while proposed new projects upstream, downstream or on tributaries are subject to review to ensure that they will not “invade or unreasonably diminish” the values of the designated Wild and Scenic River area. For example, if there was a proposal to build a dam downstream of the designated area that would back water up into the designated area this may be prohibited because it would “invade” the designated area. If there was a project proposed on a tributary that would block fall spawning runs of trout significant to the designated river then it may be prohibited because it “unreasonably diminishes” the Wild and Scenic River segment. If changes were made to eliminate these diminishments to the valued resources in the designated area, then it may proceed.

Regardless of Wild and Scenic designation, new hydroelectric projects proposed in Vermont would have to meet Vermont Water Quality Standards. In general, Vermont does not permit the construction of new dams or the raising of the height of existing dams. Furthermore, most projects are required to operate in a “run-of-river” mode, where inflow at the dam equals outflow below the project on an instantaneous basis. Additional considerations include maintaining flows to protect habitat, providing fish passage where appropriate, maintaining downstream sediment transport and avoiding the creation or perpetuation of flood hazards.

If the project is a very small project and does not tie into the electrical grid, then it will likely not fall under FERC jurisdiction. Though **Wild and Scenic designation would not prohibit these small, non-FERC-jurisdictional projects**, they would still fall under the purview of the State of Vermont and need to satisfy all existing, relevant state and local laws and regulations. These regulations may include maintenance of proper flow, and wetland, wildlife, and habitat impacts (including adequate bypass to maintain sediment and fish movement). Potential impacts to recreational access would also be evaluated, including the need to provide, maintain, or upgrade access to ensure adequate portage. This type of small project would still have to meet the state’s Water Quality Standards, and would be reviewed to be sure dam safety standards are met.

Existing Hydro

Wild and Scenic designation can be handled a few ways for existing hydro facilities. The Study Committee may decide that it makes the most sense to carve out existing hydro facilities and recommend that they not be designated. The Study Committee may also decide that it is most beneficial to include these facilities within the designated area. These facilities would run under the requirements of their current exemptions or licenses with or without designation (or even if the designation included some or all of their project boundaries). In each case, the primary impact of designation would be to trigger Wild and Scenic review under

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Section 7 of the Act. If these facilities were to make any significant changes that could affect the outstanding values for which the river was designated (for example, increase their operating capacity) that could trigger a review. Such reviews are on a case-by-case basis based on the proposed projects and their potential impacts to ensure that they will not “invade or unreasonably diminish” the values of the designated Wild and Scenic River area (see discussion above).

These are the existing hydro facilities which we know of near or within the Wild and Scenic Study Area (if you know of another, please inform us immediately).

- The Troy Hydroelectric project in Troy on the Missisquoi River has not operated since 1998. The project received from the Federal Energy Regulatory Commission (FERC) an exemption (FERC Project Number P-13381 in 2001). As of October 2012, work is underway on the civil works to restart the project. The NPS and Study Committee have already indicated to FERC in writing that this project (including the project lands owned by the Chase family) will be excluded from the designated area, and that its proposed operation as a run-of-river facility will not have an adverse impact to potential Wild and Scenic River areas upstream or down.
- The North Troy Project (formerly Missisquoi River Technologies) on the Missisquoi River in the Village of North Troy is not-operating and has a FERC exemption (FERC P-10172) issued in 1989. The project was acquired by Missisquoi River Hydro, LLC, and the new owners who are actively seeking to renew operations (perhaps as early as the fall of 2012). Designation would have no effect on the existing FERC exemption for this facility. This facility, at the beginning of the backwater of this impoundment, will be excluded from the designated area. Wild and Scenic designation should have no effect on this facility unless there are significant changes proposed for this operation - in which case the changes would need to be reviewed to ensure no adverse impact to the designated area.
- The Kendall Plant in Enosburg Falls on the Missisquoi River, operating and licensed by FERC (FERC P-2905, license expires 2023). This facility will not be part of designation, since the designated area will be defined as beginning at the backwater of this impoundment. Wild and Scenic designation should have no effect on this facility unless there are significant changes proposed for this operation - in which case the changes would need to be reviewed to ensure no adverse impact to the upstream designated area.
- The Swanton Dam Hydroelectric Project (P-2547, 11.5) is located in the village of Swanton, considerably downstream of the Study segment. The Village currently holds a preliminary permit P-14085, permit expires March 2014) for the construction of a new powerhouse at the existing dam. Most changes to this facility would not impact the Study area.
- The Sheldon Springs plant is the largest hydroelectric development on the Missisquoi River (P-7186, expires 2024). It is also well downstream of the Wild and Scenic Study segment, therefore most changes to this facility would not impact the Study area.

If the project is a small project that does not tie into the grid, or is on a non-navigable waterway, then it does not fall under FERC jurisdiction. There could be these small backyard projects or projects which were grandfathered in when FERC licensing began within our Study area. FERC calls these non-jurisdictional. Since they are not under the jurisdiction of FERC then Wild and Scenic designation would not affect them, but they would still fall under the purview of the state of Vermont.

Potential Hydro

According to Brian Fitzgerald, Vermont Agency of Natural Resources, and Duncan Hay, National Park Service's Hydropower Relicensing Program, most economically feasible and power producing hydropower sites in Vermont were identified and developed in the alternative energy boom in response to the oil crisis in the late 1970s and early 1980s. It is very unlikely that a new, large hydro project would be proposed and viable in our Study area. The biggest potential would be at Big Falls which is a State Park, and one of the Study Committee's identified Outstandingly Remarkable Values (ORVs) as it is the tallest undammed falls in the state of Vermont. According to VCGI and the Vermont Renewable Energy Atlas there are two potential hydro sites within the Study area:

- The Bonneau Dam in Troy on Mud Creek, a tributary of the Missisquoi River is currently a private dam used to create recreational opportunities. It could potentially be developed to produce less than 10 kW of energy.
- The Trout Brook Reservoir in Enosburgh managed by the town of Enosburgh on Trout Brook, a tributary to the Missisquoi. It could potentially be developed to produce less than 10 kW of energy.
- There are some smaller potential facilities listed in the Department of Energy's Virtual Hydropower Prospector. Wild and Scenic designation would likely not affect the potential to develop such tributary projects (unless the tributary itself were to be designated Wild and Scenic), as there would be no opportunity for such a project to "invade" the designated area. Any project which would "unreasonably diminish" the values of the Missisquoi and Trout Rivers would not likely pass through the state and federal permitting and environmental review necessary for such projects regardless of Wild and Scenic designation. They are also likely too small to be economically feasible, so small or remote that they would not fall under federal jurisdiction, or unlikely to be permitted under Vermont's Water Quality Standards.

It is worth noting that there are environmental, economic and permitting hurdles to surmount irrespective of Wild and Scenic designation, and that these are likely not hydro-producing facilities because they are not economically feasible or because the owners do not wish to pursue it. Developing hydropower at these dams would fall under *New Hydro* above.

DAMS

New Dams

If the dam is federally funded, all or in part, or requires a federal permit, and is within an area designated Wild and Scenic the project will not be permitted. This applies to the designated reach, with some lesser protections for those areas up and downstream from the designated section, and for tributaries if they are not within the designated area. Proposed new dams upstream, downstream or on tributaries are subject to review to ensure that they will not "invade or unreasonably diminish" the values of the designated Wild and Scenic River area (for more, see the *New Hydro* section above). State or privately funded projects on very small, non-navigable tributaries would likely not require an Army Corps 404 permit, and could not be denied due to the Wild and Scenic designation. It is unlikely that a new dam proposed for a free-flowing reach would conform to Vermont Water Quality Standards. Any new dams would also be subject to dam safety requirements of the State of Vermont.

Existing Dams

Wild and Scenic designation does not prevent the retrofit of existing dams for purposes other than hydro, such as improving a reservoir for recreation or drinking water.

NEW TECHNOLOGIES

Each river designated into the national system receives permanent protection from federally licensed or assisted dams, diversions, channelizations and other water projects that would have a direct and adverse effect on its free-flowing conditions and special resources. New technologies, such as instream turbines and tidal energy projects that do not involve the construction of a dam, would also fall under FERC's review authority, and, therefore, be subject to Wild and Scenic review. Despite the improvements in technology for hydro facilities and dams, it would take a change to the Wild and Scenic Act to allow such projects, even with new technologies; this seems unlikely.

If you know of existing or potential hydro sites which were not listed above, please contact the Study Committee immediately at 802-393-0076 or info@vtwsr.org. These sites need to be identified prior to designation when there remains some flexibility on new dams and hydro projects, and designation boundaries.

Please also consider joining us for one of our Study Committee Meetings at 7 p.m. on the third Thursday of each month, and consider visiting our website for more information www.vtwsr.org including the minutes from our September 15, 2011 meeting on hydroelectric dams and Wild and Scenic designation.

